

Example #2: If a 2000 kg car is travelling 22 m/s along the highway and applies a force of 500 N for 12 sec to pass another car, what is the new velocity?

$$\Delta p = Ft = 500(12) \\ = 6000 \text{ N} \cdot \text{s}.$$

$$\Delta p = m(v_f - v_i)$$

$$6000 = 2000(v_f - 22)$$

$$v_f = 25 \text{ m/s}$$